# CHAPTER 12

# GROUND-TO-AIR RADIO

## SECTION I. DESCRIPTION AND LEADING PARTICULARS

### 12.1.1 INTRODUCTION

This chapter provides field service information for the ground-to-air (GTA) radio system that is installed at selected sites. The GTA radio continuously transmits regularly updated information to pilots and other listeners. The system manager may select either 1-minute data, hourly METAR's or SPECI's for broadcast. This chapter includes a physical description, installation and operation instructions, theory of operation, and preventive and corrective maintenance procedures.

### 12.1.2 PHYSICAL DESCRIPTION

The GTA radio is installed in the acquisition control unit (ACU) at location 1A10 below the RF/pressure mounting shelf (figure 12.1.1). Chapter 2 provides a complete description of the ACU. The I/O panel assembly is the interface for the GTA radio to the antenna with connector J43 as the GTA radio output connection plug to the antenna. Connector J43 is a surge suppressor that is located on the I/O panel next to connector J39. Connector J43 provides protection for the GTA radio system from outside interference. Peripheral cable assembly W79, installed on the back of the ACU behind location 1A4, provides power for the radio. The radio interfaces with the voice recorder/playback board via cable W076. The radio is also connected to the SIO board via the same adapter cable for RS-232 communications. The RS-232 cable applies serial data to the radio for self-test and setup information.

The antenna is a Government-furnished Collinear antenna, the dipole elements are mounted one above the other in a common axis. These dipoles are sealed in a single fiberglass radome that provides both mechanical stability and environmental protection. The Collinear antenna is lightweight, rugged, and weatherproof and provides a vertically polarized, omnidirectional azimuth pattern with 6 dB of gain. The antenna operates over a frequency range of 116 to 137 MHz. An antenna cable connects the antenna to connector J43. The length of the cable varies from site to site.

At some single-cabinet combined ASOS sites, an alternative GTA Antenna Kit (62828-40507-10) may be installed in lieu of the collinear antenna. This alternative antenna is a ground-plane antenna mounted near the top of the wind tower. The type and location of this antenna reduces GTA radio voice-modulated transmission interference with the Present Weather Sensor. Refer to Chapter 14 for descriptions and replacement procedures for this antenna. $

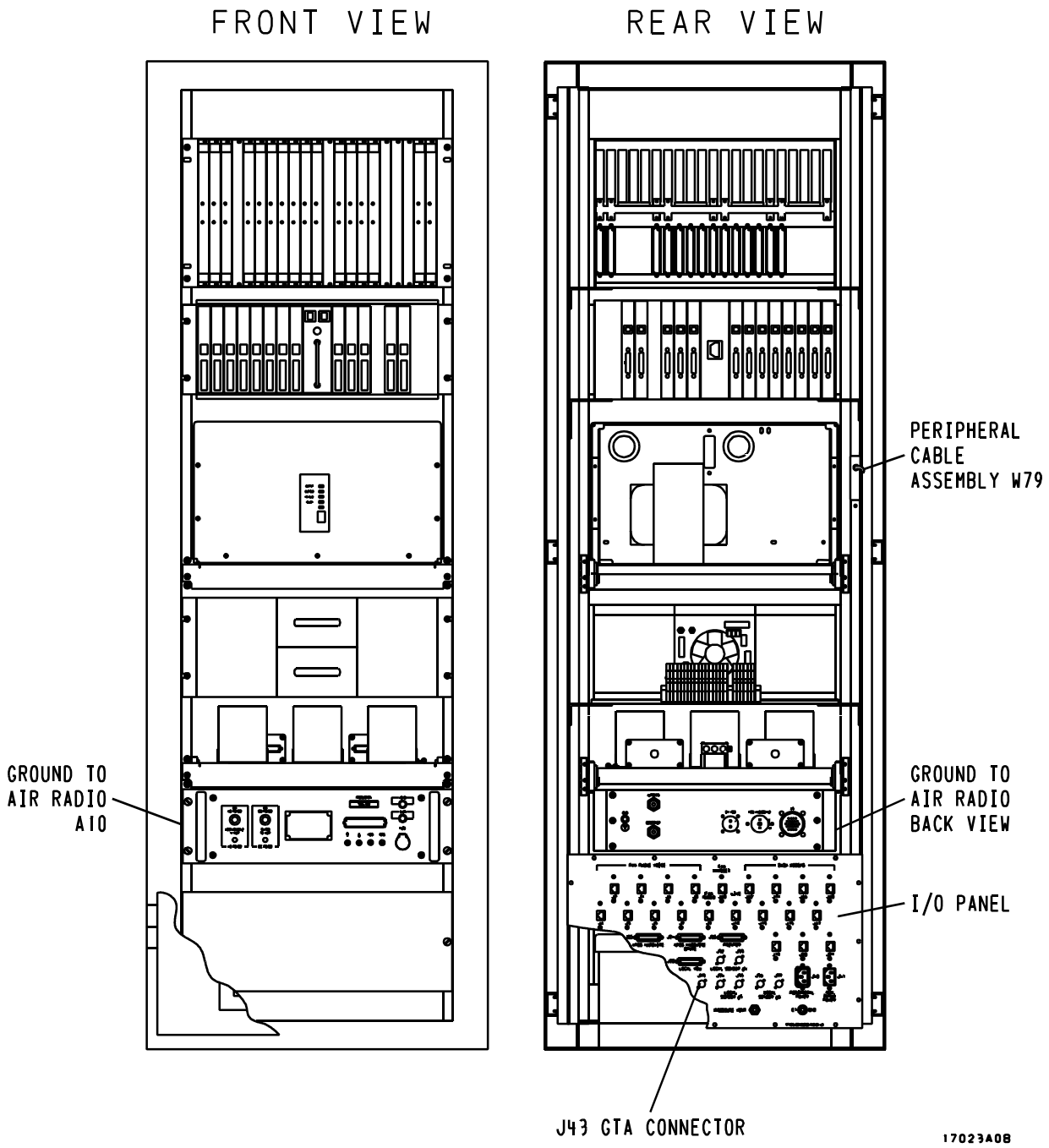


**Figure 12.1.1. Acquisition Control Unit (ACU)**